

Setup and Troubleshooting

HP xw Series Workstations

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1 Locating HP Resources

The following table helps you locate commonly needed information.

Table 1-1 Locating HP Resources

What Do You Need Help With?	Where to Find It?
Locating additional information.	For online access to technical support information and tools, visit www.hp.com/support . Support resources include Web-based troubleshooting tools, technical knowledge databases, driver and patch downloads, online communities, and proactive notification services.
Locating HP user documentation, white papers, and third-party documentation.	For the latest online documentation, visit www.hp.com/support/workstation_manuals .
Finding regulatory information.	Refer to the <i>Safety & Regulatory Information</i> guide on the <i>Documentation and Diagnostics</i> CD for product Class information. You can also refer to the label on the workstation chassis.
Locating parts and accessories.	For complete and current information on supported accessories and components, visit http://partsurfer.hp.com .
Exploring the contents on the <i>Documentation and Diagnostics</i> CD.	<p>For information on using the CD as a documentation tool or a diagnostics tool, see section 1.1 "Using the Documentation and Diagnostics CD."</p> <p>The <i>Documentation and Diagnostics</i> CD includes:</p> <ul style="list-style-type: none"> • a copy of the <i>Setup and Troubleshooting</i> guide • a link to the latest <i>Service and Technical Reference Guide</i> • a copy of the <i>Safety and Comfort Guide</i> • a copy of the <i>Safety & Regulatory Information</i> guide • HP Insight Diagnostics utility
Signing up for product notifications.	Subscriber's Choice is an HP program that allows you to sign up to receive driver and software alerts, proactive change notifications (PCNs), the HP newsletter, and more. Sign up today at www.hp.com/go/subscriberschoice .
Locating workstation QuickSpecs.	The Product Bulletin contains QuickSpecs for HP Workstations. QuickSpecs provide an overall specification review of your product. It includes information about its features including the operating system, power supply, memory, processor, and many other components of the system. To access the QuickSpecs, visit www.hp.com/go/productbulletin .
Locating warranty information.	Each system comes with a printed copy of the warranty statement.
Locating information about the system board.	The inside of the access panel contains an illustration of the system board layout. Also, you can find additional information by reviewing the <i>Service and Technical Reference Guide</i> that can be found on the <i>Documentation and Diagnostics</i> CD or on the Web at www.hp.com/support/workstation_manuals .
Locating diagnostics tools.	The <i>Documentation and Diagnostics</i> CD contains the HP Insight Diagnostics utility. To use this utility, see section 5.1.1 "HP Insight Diagnostics".
Locating the latest BIOS and drivers.	Verify you have the latest drivers for your system by visiting www.hp.com/go/workstationsupport .
Determining the meaning of beeps and LED codes.	See section 5.4.3 "Diagnostic Lights and Audible (Beep) Codes" for detailed information about beep and Light Emitting Diode (LED) codes applicable to the workstation.
Locating the serial number and Certificate of Authenticity (COA) label (if applicable).	The serial number labels can be found on the top panel or on the side of the unit and at the rear of the unit. The COA label is generally located on the top panel or access panel near the serial number label. See section 2.6 "Serial Number and COA Label Location" for more information.
Reinstalling the operating system.	See section "Software Setup for Microsoft® Windows®" for more information on how to load the operating system.

Table 1-1 Locating HP Resources (continued)

What Do You Need Help With?	Where to Find It?
Accessing Web-based support tools to resolve desktop issues.	See "Instant Support/Active Chat" on page 30 for more information on how to receive support.
Finding information on how to contact technical support.	Before you call technical support, see section 5.1 "Self Troubleshooting" for more information. To facilitate your call, see section 5.5 "Calling Technical Support" for a listing of information you need to have available before you call. For U.S. and Canada, call 1-800-HPINVENT. For a listing of all worldwide technical support phone numbers, visit www.hp.com/support , select your region and click Contact HP in the upper-left corner.

1.1 Using the Documentation and Diagnostics CD

1.1.1 Accessing Documentation

To access the documentation contents of the *Documentation and Diagnostics CD*:

Windows-Based Workstations

Insert the CD into the CD-ROM drive. The CD will Autorun. If there is no CD-ROM drive activity for two minutes or more, the Autorun feature may not be enabled on the workstation. To run the CD, follow these steps:

1. Click **Start > Run**.
2. Type:
X:\index.htm (where X is the drive letter designator for the CD-ROM drive)
3. Click **OK**.

Linux-Based Workstations

If the workstation is running a Linux operating system, browse the CD and click the **index.htm** file to launch the CD interface. To view the documents on the CD, download and install Adobe® Acrobat® Reader for Linux from www.adobe.com.

1.1.2 Accessing Diagnostics

To use the HP Insight Diagnostics utility, insert the *Documentation and Diagnostics CD* into your system and reboot. Follow the onscreen menu options and directions to begin your testing.

 **NOTE:** If you do not have the *Documentation and Diagnostics CD* available, download it from www.hp.com/go/workstationsupport.

1. Select your HP Workstation from the list.
2. In the "I would like to" section, click the **download drivers and software**.
3. In the "select operating system" section, select your OS.
4. Click the **Diagnostics** link and then click the appropriate diagnostic program link.

2 Hardware Setup

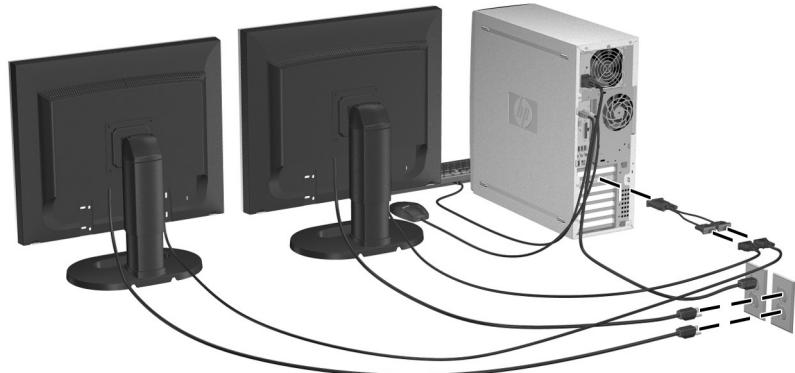
2.1 Quick Setup

1. After unpacking your HP Workstation, locate an accessible workspace to set up the system and connect the mouse, keyboard, and power cables to your workstation. Connect the power cable from the workstation to a power outlet.



 **NOTE:** Connect other components, such as a printer, according to the instructions included with the device. For more information on your HP Workstation, refer to the *Documentation and Diagnostics CD* or visit www.hp.com/go/workstationsupport.

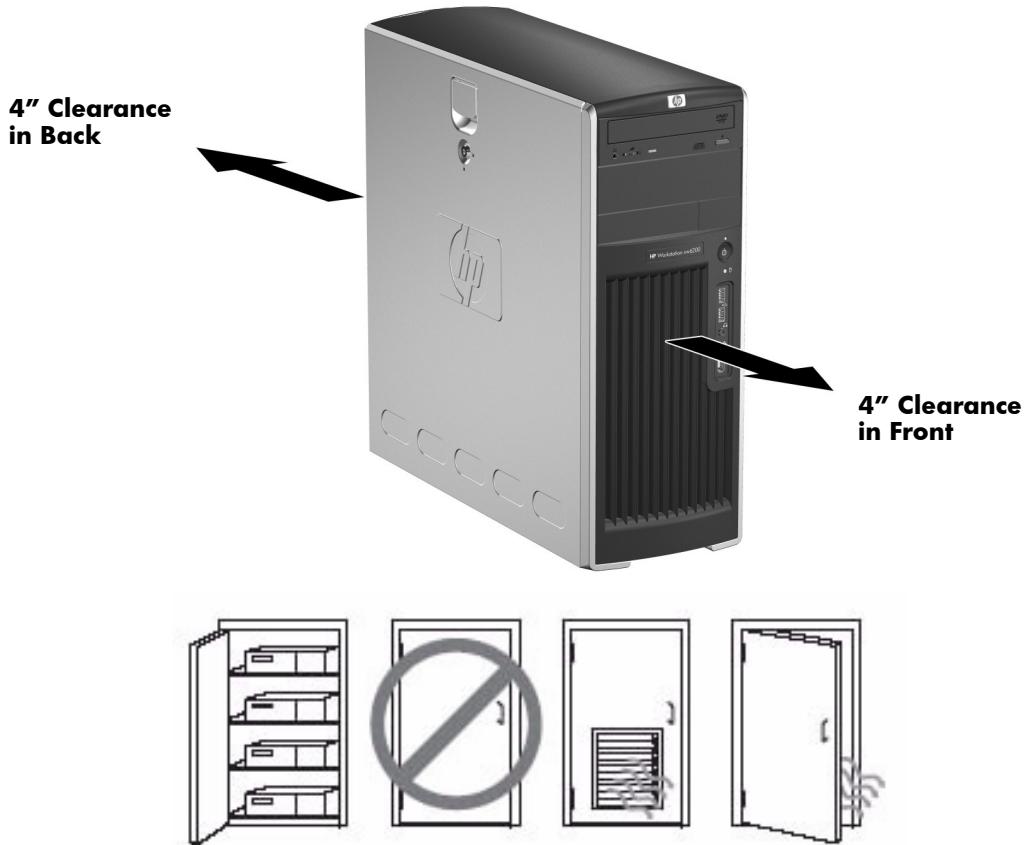
2. Connect the monitor cables to the dongle and connect the dongle to the video card. (If using only one monitor, or a graphics card with two inputs, a dongle might not be required.) Connect the power cables from the monitors to a power outlet.



2.1.1 Ventilation

Proper ventilation for your system is very important. Refer to the following notes and illustrations to properly position your system for maximum airflow.

- Place the computer in an area that is relatively cool with adequate ventilation.
- Operate the computer on a sturdy, level surface. Leave at least 10.2-cm (4-inch) clearance on the front and rear sides of the computer to permit the required airflow.
- Never restrict the incoming or outgoing airflow of the computer by blocking any vents or air intakes. Do not place the keyboard, with the keyboard feet down, directly against the front of the desktop unit as this also restricts airflow.



2.2 Front Panel Components

2.2.1 HP xw4200 Workstation and HP xw4300 Workstation Front Panel Components

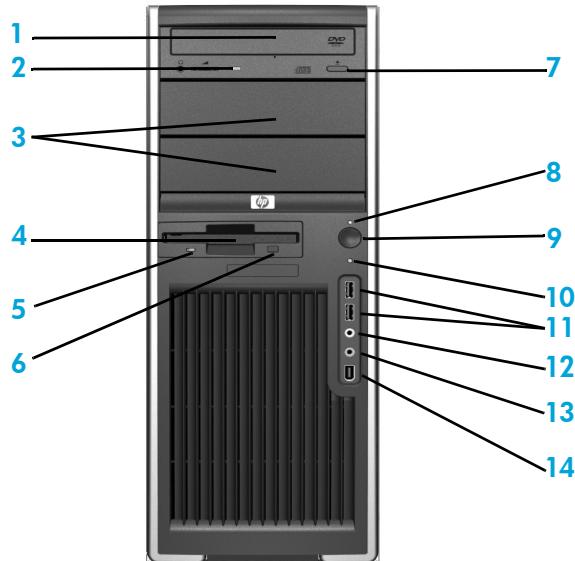


Table 2-1 HP xw4200 Workstation and HP xw4300 Workstation Front Panel Components

Item	Description	Item	Description
1	Optical Drive*	8	Power On Light
2	Optical Drive Activity Lights	9	Power Button
3	5.25-Inch Drive Bays	10	Hard Drive Activity Light
4	Diskette Drive (optional)	11	USB 2.0 (Universal Serial Bus) Ports
5	Diskette Drive Activity Light	12	Headphone Connector
6	Diskette Eject Button	13	Microphone Connector
7	Optical Drive Eject Button	14	IEEE-1394a Connector**

NOTE: * An optical drive is a CD-ROM, CD-R/RW, DVD-ROM, DVD±R/RW, or CD-RW/DVD combo drive.

NOTE: ** IEEE-1394a is an optional feature. If the unit was purchased without this option, this connector will be covered.

2.2.2 HP xw6200 Workstation Front Panel Components

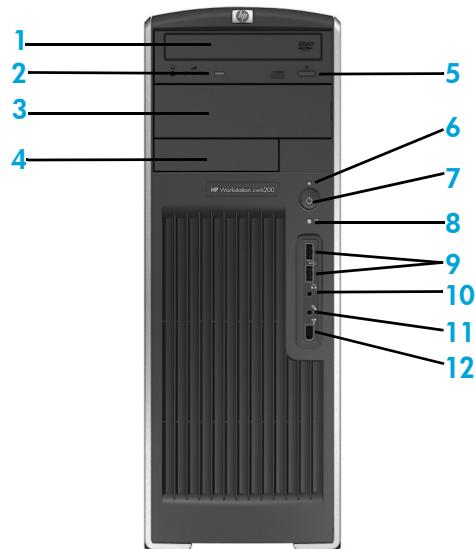


Table 2-2 HP xw6200 Workstation Front Panel Components

Item	Description	Item	Description
1	Optical Drive*	7	Power Button
2	Optical Drive Activity Lights	8	Hard Drive Activity Light
3	5.25-Inch Drive Bays	9	USB 2.0 Ports (2)
4	Diskette Drive (optional)	10	Headphone Connector
5	Optical Drive Eject Button	11	Microphone Connector
6	Power On Light	12	IEEE-1394a Connector**

NOTE: * An optical drive is a CD-ROM, CD-R/RW, DVD-ROM, DVD±R/RW, or CD-RW/DVD combo drive.

NOTE: ** IEEE-1394a is an optional feature. If the unit was purchased without this option, this connector will be covered.

2.2.3 HP xw8200 Workstation and HP xw9300 Workstation Front Panel Components

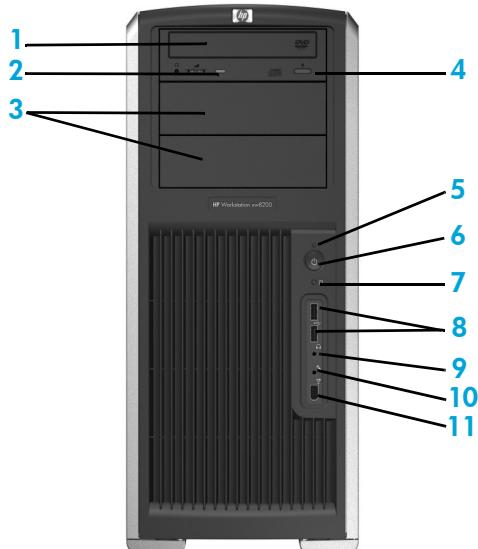


Table 2-3 HP xw8200 Workstation and HP xw9300 Workstation Front Panel Components

Item	Description	Item	Description
1	Optical Drive*	7	Hard Drive Activity Light
2	Optical Drive Activity Lights	8	USB 2.0 Ports (2)
3	5.25-Inch Drive Bays**	9	Headphone Connector
4	Optical Drive Eject Button	10	Microphone Connector
5	Power On Light	11	IEEE-1394a Connector
6	Power Button		

NOTE: * An optical drive is a CD-ROM, CD-R/RW, DVD-ROM, DVD±R/RW, or CD-RW/DVD combo drive.

NOTE: **The lowest 5.25 inch bay on the xw9300 only supports an optional 3.5 floppy diskette drive or a hard drive.

2.3 Rear Panel Components

2.3.1 HP xw4200 Workstation and HP xw4300 Workstation Rear Panel Components

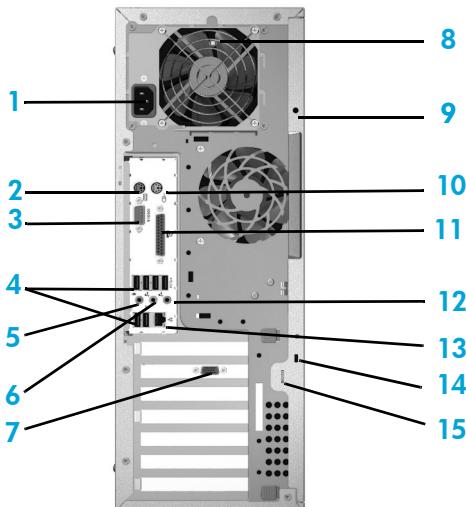


Table 2-4 HP xw4200 Workstation and HP xw4300 Workstation Rear Panel Components

Item	Description	Item	Description
1	Power Cord Connector	9	Universal Chassis Clamp Opening
2	Keyboard Connector (purple)	10	Mouse Connector (green)
3	Serial Connector (teal)	11	Parallel Connector (burgundy)
4	USB 2.0 Ports (6)	12	Audio Line-In Connector (light blue)
5	Microphone Connector (pink)	13	RJ-45 Network Connector
6	Audio Line-Out Connector (lime)	14	Cable Lock Slot
7	Graphics Adapter	15	Padlock Loop
8	Built In Self Test (BIST) (green LED)		

NOTE: The rear panel connectors are labeled with industry-standard icons and colors to assist you in connecting your peripheral devices.

2.3.2 HP xw6200 Workstation Rear Panel Components

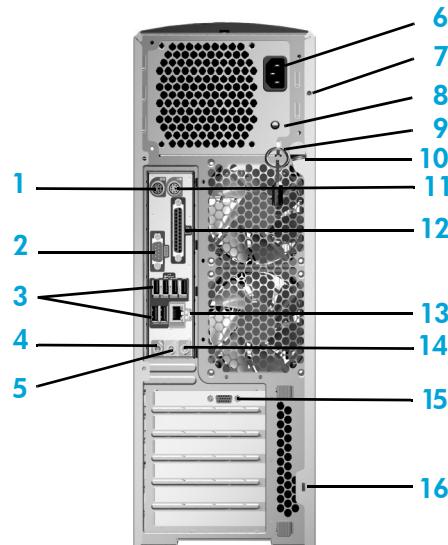


Table 2-5 HP xw6200 Workstation Rear Panel Components

Item	Description	Item	Description
1	Keyboard Connector (purple)	9	Access Panel Key
2	Serial Connector (teal)	10	Padlock Loop
3	USB 2.0 Ports (6)	11	Mouse Connector (green)
4	Microphone Connector (pink)	12	Parallel Connector (burgundy)
5	Audio Line-Out Connector (lime)	13	RJ-45 Network Connector
6	Power Cord Connector	14	Audio Line-In Connector (light blue)
7	Universal Chassis Clamp Opening	15	Graphics Adapter
8	Built In Self Test (BIST) (green LED)	16	Cable Lock Slot

NOTE: The rear panel connectors are labeled with industry-standard icons and colors to assist you in connecting your peripheral devices.

2.3.3 HP xw8200 Workstation Rear Panel Components

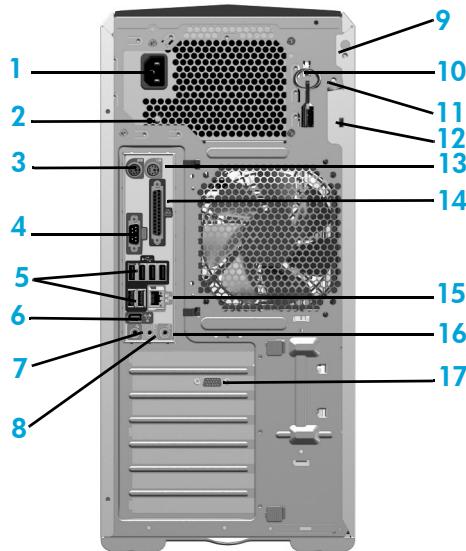


Table 2-6 HP xw8200 Workstation Rear Panel Components

Item	Description	Item	Description
1	Power Cord Connector	10	Access Panel Key
2	Built In Self Test (BIST) (green LED)	11	Padlock Loop
3	Keyboard Connector	12	Cable Lock Slot
4	Serial Connector (teal)	13	Mouse Connector (green)
5	USB 2.0 Ports (6)	14	Parallel Connector (burgundy)
6	IEEE 1394 Connector	15	RJ-45 Network Connector
7	Microphone Connector (pink)	16	Audio Line-In Connector (light blue)
8	Audio Line-Out Connector (lime)	17	Graphics Adapter
9	Universal Chassis Clamp Opening		

NOTE: The rear panel connectors are labeled with industry-standard icons and colors to assist you in connecting your peripheral devices.

2.3.4 HP xw9300 Workstation Rear Panel Components

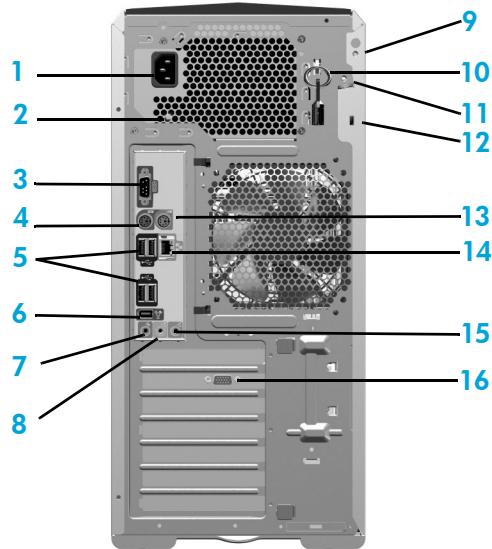


Table 2-7 HP xw9300 Workstation Rear Panel Components

Item	Description	Item	Description
1	Power Cord Connector	9	Universal Chassis Clamp Opening
2	Built In Self Test (BIST) (green LED)	10	Access Panel Key
3	Serial Connector (teal)	11	Padlock Loop
4	Keyboard Connector	12	Cable Lock Slot
5	USB 2.0 Ports (4)	13	Mouse Connector (green)
6	IEEE 1394 Connector	14	RJ-45 Network Connector
7	Microphone Connector (pink)	15	Audio Line-In Connector (light blue)
8	Audio Line-Out Connector (lime)	16	Graphics Adapter

NOTE: The rear panel connectors are labeled with industry-standard icons and colors to assist you in connecting your peripheral devices.

2.4 Keyboard



Table 2-8 Standard Keyboard Key Descriptions

Item	Component	Description
1	Function Keys	Perform special functions, depending on the software application being used.
2	Editing Keys	Include Insert, Home, Page Up, Delete, End, and Page Down.
3	Status Lights	Indicate the status of the workstation and keyboard settings (Num Lock, Caps Lock, and Scroll Lock).
4	Numeric Keys	Use as a calculator keypad.
5	Arrow Keys	Move left, right, up, and down, using the keyboard instead of the mouse.
6	Application Key*	Open pop-up menus in a Microsoft™ Office application. Might perform other functions in other software applications (like the right mouse button).
7	Windows® Logo Keys*	Open the Start menu in Microsoft Windows. Use in combination with other keys to perform other functions. (Available only on systems with Microsoft Windows pre-installed.)
8	Ctrl Key	Use in combination with another key; its effect depends on the application software you are using.

NOTE: *Keys available in select geographic regions.

2.4.1 Using the Windows Logo Key

Use the Windows Logo key in combination with other keys to perform certain functions available in the Windows operating system.

 **NOTE:** The Windows logo key does not function on Linux systems.

Table 2-9 Windows Logo Key Functions

Key	Description
Windows Logo Key	Displays or hides the Start menu
Windows Logo Key + d	Displays the Desktop
Windows Logo Key + m	Minimizes all open applications
Shift + Windows Logo Key + m	Undoes Minimize All
Windows Logo Key + e	Launches My Computer
Windows Logo Key + f	Launches Find Document
Windows Logo Key + Ctrl + f	Launches Find Computer
Windows Logo Key + F1	Launches Windows Help

Table 2-9 Windows Logo Key Functions

Key	Description
Windows Logo Key + I	Locks the computer if you are connected to a network domain, or allows you to switch users if you are not connected to a network domain
Windows Logo Key + r	Launches the Run dialog box
Windows Logo Key + u	Launches the Utility Manager
Windows Logo Key + Tab	Activates the next Taskbar button

2.5 Special Mouse Functions

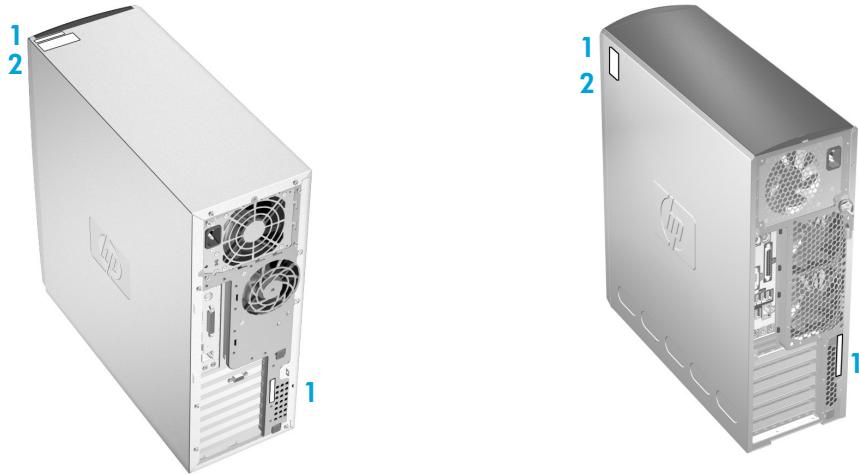
Most software applications support the use of a mouse. The functions assigned to each mouse button depend on the software applications you are using.

 **NOTE:** Some mouse software applications might interfere with the functionality of the keyboard and mouse if the keyboard and mouse are connected to your workstation through a KVM (keyboard, video, mouse) switch. If you are experiencing "no-response" from your keyboard and mouse, you might need to uninstall the mouse software or connect the keyboard and mouse directly to the keyboard and mouse connectors on the workstation.

2.6 Serial Number and COA Label Location

Each HP Workstation has two unique serial number labels **1** and a Certificate of Authentication (COA) label **2** (for Windows-preinstalled systems only). In general, the serial number labels can be found on the top panel or on the side of the unit and at the rear of the unit. Keep this number available when contacting customer service for assistance. The COA label is generally located on the top panel or side of the unit near the serial number label.

 **NOTE:** If you must restore the operating system with Windows OEM CDs (installing without using the *Restore Plus!* CDs), you will need to call Microsoft in order to provide the company with a Stock Keeping Unit (SKU) number. The SKU information is on the service tag and is the OS product number in the lower right hand section of the tag. It should say "OS: XXXXXX" where the "XXXXXXX" is the OS product number.



3 Software Setup for Microsoft® Windows®

△ **CAUTION:** Do not add optional hardware or third-party devices to the HP Workstation until the operating system is successfully installed. Adding hardware might cause errors and prevent the operating system from installing correctly.

Use the following instructions to set up your OS and software:

- Section 3.1 "Starting the Operating System"
- Section 3.2 "Restoring the Software"
- Section 3.3 "Verifying System After First Boot"
- Section 3.5 "HP Cool Tools"
- Section 3.6 "Customizing the Monitor Display"
- Section 3.7 "Subscribing to Software Support"
- Section 3.8 "Enabling Hyper-Threading Technology"
- Section 3.9 "Using Energy Star"
- Section 3.10 "Using Accessibility Features"
- Section 3.11 "Using HP ProtectTools Embedded Security (Optional)"
- Section 3.12 "Turning Off the Workstation"

3.1 Starting the Operating System

The first time you turn on the workstation, the operating system is installed automatically. This process takes about 5 to 10 minutes. Carefully read and follow the instructions on the screen to complete the installation.

△ **CAUTION:** After the automatic installation has started, DO NOT TURN OFF THE WORKSTATION UNTIL THE PROCESS IS COMPLETE. Turning off the workstation during the installation process can damage the software that runs the workstation or prevent its proper installation.

📝 **NOTE:** After you have selected a language during initial boot of the OS, the language will be locked in on the hard drive. If the system is restored for some reason, the restore CD will check for the language stored on the hard drive and will restore only the original preinstalled language. In the case where a new hard drive is installed or no language is found on the disk, the Recovery CD will install any language requested. If the wrong OS is accidentally unbundled during the initial boot, technical support will have to be contacted to get a "key" to unlock it and then you will be able to restore the OS to the correct language.

A language selection is not required for the 64-bit operating system.

For complete operating system installation and configuration instructions, refer to the operating system documentation that was provided with the workstation. Additional information is available in the online help after you install the operating system.

3.2 Restoring the Software

Restore the original operating system and factory-installed software by using the *Restore Plus!* CD and the OS CDs that came with the workstation. Carefully read and follow the instructions provided with the *Restore Plus!* CD.

△ **WARNING!** The *Restore Plus!* CD restores the system to the state when the system was purchased. All user files, applications, and so on will be **permanently deleted** and cannot be recovered. Before using this restoration option, back up your personal files, such as documents, music, and photos to a CD, external hard drive, or network device.

📝 **NOTE:** If you must restore the operating system with Windows OEM CDs (installing without using the *Restore Plus!* CD), you will need to call Microsoft in order to provide the company with a Stock Keeping Unit (SKU) number. The SKU information is on the service tag. It is the OS product number in the lower right hand section of the tag. It should say "OS: XXXXXXX" where the "XXXXXXX" is the OS product number.

📝 **NOTE:** If you are restoring on a 64-bit operating system, you will be prompted for the second restore CD.

 **NOTE:** If you restore your system using the *Restore Plus!* CD, some settings, such as your power management settings (such as the Energy Star® settings), will need to be reapplied.

3.3 Verifying System After First Boot

HP continually strives to implement new enhancements that will increase functionality, performance, and reliability of your HP Workstation. To ensure that your workstation takes advantage of the latest enhancements, HP recommends that you install the latest BIOS, driver and software updates on a regular basis.

After successfully booting your system for the first time:

- Verify you have the latest system BIOS loaded. Refer to section 3.3.1 "Upgrading the BIOS" for instructions.
- Verify you have the latest drivers for your system. Refer to section 3.3.2 "Installing or Upgrading Device Drivers" for instructions.
- Review "Locating HP Resources" on page 5 to become familiar with your available HP resources.

Also, consider the following:

- Subscribe to Driver Alerts at www.hp.com/subscriptionchoice.
- Purchase a subscription to the Support Software CD kit. Refer to section 3.7 "Subscribing to Software Support" for ordering information.

3.3.1 Upgrading the BIOS

After the first boot, it is a good practice to verify your system is operating with the latest BIOS.

To check the current BIOS on the system:

During power up, wait for the prompt **F10=setup** to appear on the lower right corner of the screen. After the prompt appears, press the **F10** key to enter F10 setup. The F10 Setup Utility displays and lists the BIOS version under **File > System Information**. Note this number so that you can compare it with what is on the HP Web site.

To check the latest BIOS available:

1. Go to www.hp.com/go/workstationsupport.
2. Select your HP Workstation from the list.
3. From the "I would like to" section, click **download drivers and software**.
4. In the "select operating system" section, select your OS.
5. From the "quick jump to downloads by category..." area, click the **BIOS** link.
6. Click the link below the "description" area.

If the BIOS on the Web site is the same as the version on the system, no further action is required.

If the BIOS on the Web site is a later version, then upgrade the system BIOS using the later version.

To download and upgrade the BIOS:

1. From the HP Web site, click the **Download** button next to the appropriate system BIOS.
2. From the **File Download** window, click **Open**.
3. From the **InstallShield Wizard** window, click **Next**.
4. Accept the license agreement and click **Next**.
5. Enter the location where you want the files to be saved to. Click **Next**.

At this point, there are several options available to upgrade the system BIOS. You can save the files to bootable devices such as a 3.5-inch diskette or a USB device. The shortest and most efficient way is to use the HPQFlash utility that is available on your system. This utility is not available on Windows XP Professional x64 Edition.

32-bit Operating System

To run HPQFlash, browse to the folder where you saved the BIOS SoftPaq earlier. Locate and click on the **HPQFlash.exe** file to initiate the HPQFlash utility. Follow the on-screen instructions. The current system BIOS and the system BIOS that is about to be loaded is displayed. You will be notified after the BIOS upgrade is complete.

 **NOTE:** A SoftPaq is a file (usually a zip or executable file) that contains support software, which can be a collection of device drivers, configuration programs, flashable ROM images, utilities, agents, and so on.

64-bit Operating System

Refer to the README file in the SoftPaq for instructions on upgrading the BIOS.

3.3.2 Installing or Upgrading Device Drivers

To install hardware devices, such as a printer, display adapter, or network adapter, after the operating system is installed, the operating system needs access to the appropriate software drivers for the devices.

To copy the drivers to your system, perform one of the following actions:

- Copy the drivers from the CD that was supplied with the peripheral device (manufacturers usually send drivers on the CD).
- Go to the Help & Support Center installed on your system (on most factory-installed Windows XP operating systems), click **Start > Help & Support**. Click the icon above **HP Software & Drivers Download** and review or select available updates.
- Visit the HP Support Web site:
 - a. Go to www.hp.com/go/workstationsupport.
 - b. Select your HP Workstation from the list.
 - c. In the "I would like to" section, click **download drivers and software**.
 - d. In the "select operating system" section, select your OS.
 - e. Locate the driver and click **download** next to your desired file. Follow the on-screen instructions to complete the installation.
- Visit the Web site of the manufacturer of the peripheral device if no drivers can be found with the other methods.

3.4 Optical Writer and DVD Applications

If your HP Workstation shipped with an optical writer or DVD drive, the appropriate applications need to be installed from the application CDs included with your workstation. On some models, these applications have already been installed.

3.5 HP Cool Tools



NOTE: HP Cool Tools may not be available on all HP Workstations.

Most HP Workstations come preloaded with additional software that is not automatically installed when you first boot your system. Additionally, a number of valuable pre-installed tools on your workstation can enhance your workstation experience. To access or learn more about these applications:

- Open the **HP Cool Tools** folder by selecting **Start > All Programs > HP Cool Tools**.

OR

- Click the **HP Cool Tools** icon on the desktop.

To learn more about these applications, click **HP Cool Tools—Learn More**.

To install or launch the applications, click the appropriate application.

3.6 Customizing the Monitor Display

You can manually select or change the monitor model, refresh rates, screen resolution, color settings, font sizes, and power management settings. To do so, right-click the desktop, then click **Properties** to change display settings. For more information, refer to the online documentation provided with the graphics controller utility or the documentation that came with your monitor.

3.7 Subscribing to Software Support

You can also obtain the latest support software through a subscription to the Support Software CD Kit using the Support Software Management order form available at the following Web site:

<http://h18007.www1.hp.com/support/files/workstations/us/purchase.html>

3.8 Enabling Hyper-Threading Technology

HT Technology is a high performance technology, developed by Intel®, that allows a single processor to execute multiple threads of instructions simultaneously. HT Technology enables the Intel processor to utilize its execution resources more efficiently, delivering performance increases and improving user productivity. Not all system applications benefit from the HT Technology. Not all systems support HT Technology.

To see if HT Technology can benefit you, test your system by turning the feature on.

To enable HT Technology:

- The Computer Setup (F10) menu can be used to turn this feature on or off. To enter Computer Setup, during power up, wait for the prompt **F10=setup** to appear on the lower right corner of the screen. After the prompt appears, press the **F10** key to enter F10 setup. At Computer Setup, select **Advanced > Device Options > Hyper-Threading**, then choose whether to enable or disable the HT Technology.

OR

- If you have HP Cool Tools (available on some HP Workstations), click the **HP Cool Tools** icon, select **HP Protect Tools Security Manager**, select **BIOS Configuration**, click the **Advanced** tab, click **Device Options** and enable **Hyper-Threading**.

If the HP Cool Tools icon is not on your desktop, click **Start > All Programs > HP Cool Tools > HP Protect Tools Security Manager**. Within HP Protect Tools Security Manager, select **BIOS Configuration**, click the **Advanced** tab, click **Device Options** and enable **Hyper-Threading**.

 **NOTE:** If your workstation does not support HT Technology, the menu item will not be available on the **Computer Setup** menu.

 **NOTE:** HT Technology is only available with select Intel processors.

For more information about the HT Technology, visit the Intel Web site at www.intel.com.

3.9 Using Energy Star

The Energy Star® program, a government-backed initiative, promotes energy efficiency by identifying ways to reduce energy consumption at home or in the office. Some HP Workstations may be configured to follow Energy Star guidelines for power consumption.

For those workstations supporting Energy Star and have it enabled, the power management features will be set as follows:

- Monitor—goes into Standby mode after 20 minutes of inactivity.
- System—goes into Standby mode after 20 minutes of inactivity.
- Hard Drive—goes into power savings mode after the system goes into Standby mode.

 **NOTE:** If you have to restore the operating system, Energy Star settings (if applicable) will need to be reset after the restore.

 **NOTE:** For information on resetting Energy Star settings, refer to the *Service and Technical Reference Guide*, which is available through a link on the *Documentation and Diagnostics CD* (www.hp.com/support/workstation_manuals).

3.10 Using Accessibility Features

HP is committed to designing products, services, and programs with improved usability and accessibility for all customers.

HP products with Windows XP preinstalled are designed for accessibility, and these products are tested with industry-leading Assistive Technology products.

HP Accessibility—connecting everyone to the power of technology.

3.11 Using HP ProtectTools Embedded Security (Optional)

 **NOTE:** This utility is not available on Windows XP Professional x64 Edition.

The HP ProtectTools Embedded Security solution includes the following key components:

- **Trusted Platform Module (TPM) Embedded Security** is a device with a chip that offers security and encryption features and provides a tamper-proof storage area for protecting public and private keys. The chip is factory-installed and should not be accessed or removed except by HP authorized service providers. It is critical to back up the Embedded Security credentials if data is being encrypted with the Embedded Security chip. The backup is required to restore your settings and data whenever the system board or Embedded Security chip is changed. To perform the backup, use the HP ProtectTools Embedded Security Backup Wizard that is part of the HP ProtectTools Security Manager utility.
- **HP ProtectTools Security Manager** can be configured to prevent unauthorized access using Smart Cards, TPM Embedded security chips, USB tokens and other security technologies. HP ProtectTools Security Manager is completely customizable, and gives business customers the flexibility to choose the level of security that best meets their needs.

For more information on using HP ProtectTools, visit www.hp.com/products/security.

3.12 Turning Off the Workstation

To properly turn off the workstation, first shut down the operating system software.

 **CAUTION:** Manually forcing the workstation off can cause loss of data.

To manually turn off power to the workstation, press and hold the power button for four seconds. However, manually turning off the power bypasses the standby state and can result in loss of data.

To reconfigure the power button to work in On/Off mode, run Computer Setup (F10). For more information about using Computer Setup, refer to the *Service and Technical Reference Guide*, which is available through a link on the *Documentation and Diagnostics CD* (www.hp.com/support/workstation_manuals).

4 Software Setup for Linux

△ **CAUTION:** Do not add optional hardware or third-party devices to the HP Workstation until the operating system is successfully installed. Doing so might cause errors and prevent the operating system from installing correctly.

Use the following instructions to set up your OS and software:

- Section 4.1 “Installing and Customizing HP Linux Workstations”
- Section 4.2 “Verifying System After First Boot”
- Section 4.3 “Subscribing to Software Support”
- Section 4.4 “Enabling Hyper-Threading Technology”
- Section 4.5 “Turning Off the Workstation”

4.1 Installing and Customizing HP Linux Workstations

This section contains information for installing and customizing your HP Linux Workstation.

- Section 4.1.1 “Installing and Customizing Linux–Preinstalled Workstations”
- Section 4.1.2 “Installing and Customizing Linux–Enabled Workstations”

4.1.1 Installing and Customizing Linux–Preinstalled Workstations

If you have a Linux-preinstalled workstation, follow the instructions in this section to set up your OS and software.

After the boot process completes, you can view additional HP Linux documentation by simply opening your Internet browser (the browser is automatically set to use the local HP documentation page as its default). You can also access Linux Web links for Red Hat (Internet access required) by using your Internet browser.

📝 **NOTE:** For additional information concerning the setup of Linux–preinstalled or Linux–enabled workstations, refer to the *HP User Manual for Linux*, which is located at www.hp.com/support/linux_user_manual. For additional information about HP and Linux, visit www.hp.com/linux.

Starting the Linux Operating System

The first time the HP Workstation is booted, the Red Hat First Boot utility displays. This program allows you to enter your password, network, graphics, time, and keyboard settings for your workstation.

△ **CAUTION:** Once the automatic installation has begun, DO NOT TURN OFF THE WORKSTATION UNTIL THE PROCESS IS COMPLETE. Turning off the workstation during the installation process can damage the software that runs the workstation or prevent its proper installation.

📝 **NOTE:** When you enable the YPBind feature in the Network tab of the Linux Setup Tool, you might get a blank screen for about 15–30 seconds after you have selected and saved all of your settings and have exited the utility. This is normal. The boot process continues its execution after the screen returns.

Restoring the Linux Operating System

📝 **NOTE:** To restore the Linux OS, the HP Driver CD and Red Hat box set are required.

Download the latest HP Driver CD to get any new enhancements.

Downloading the Latest HP Driver CD

To download the latest HP Driver CD:

1. Download the ISO image to a local hard drive from www.hp.com/go/workstationsupport.
 - a. Select your HP Workstation.
 - b. From the “I would like to” area, click the **download drivers and software** link.
 - c. From the “select your operating system” area, select the Linux OS that matches your box set.

- c. Select the latest version from the **Utility Tools** section.
- d. Download and unpack it (tar zxvf filename.tgz).
2. Copy the ISO image to CD-R bootable media. On another Linux workstation, use the `cdrecord` utility. Identify the device address for the CD burner (`cdrecord --scanbus`). The default is usually 2, 0, 0.

Example:

```
cdrecord -v -eject dev=2,0,0 CD0_golden.iso
```

Installing with the HP Driver CD

To install with the HP Driver CD:

1. Boot the workstation from the Red Hat box set Binary CD 1.
2. Insert the Linux operating system CDs from the Red Hat box set as prompted.
3. Continue following the prompts until the operating system is successfully installed.
4. Configure the X server to start on reboot.
5. Reboot the workstation.
6. Follow the prompts to set up your system with the Red Hat First Boot utility.
7. When prompted in First Boot to add additional CDs, insert the HP Driver CD into the CD-ROM tray of the workstation.
8. Click **Install** next to "Additional CDs." The HP Driver CD window opens.
9. Click **Press to begin install....**
10. When the install is done, you will have two options, "Reboot now..." on the left-side and "Press to continue, reboot later..." on the right-side.
11. Click **Reboot now....**

4.1.2 Installing and Customizing Linux-Enabled Workstations

Linux-enabled workstations are not pre-installed with Linux. They require the HP Installer Kit for Linux and the purchase of a Red Hat box set. The Installer kit includes the HP CDs necessary to complete the installation of all versions of the Red Hat box set that have been verified to work on HP Workstation hardware.

Verifying Hardware Compatibility

To see which Linux versions have been verified to work on HP Workstation hardware:

1. Go to www.hp.com/support/workstation_manuals.
2. Select your HP Workstation model.
3. Click the **Hardware Support Matrix for Linux** link.

Installing the Linux Operating System

To install the Linux operating system on your Linux-enabled system:

1. Follow the instructions for "Restoring the Linux Operating System" on page 25 in the previous section.
2. Follow the instructions for "Starting the Linux Operating System" on page 25 in the previous section.

 **NOTE:** For additional information concerning the setup of Linux-preinstalled or Linux-enabled workstations, refer to the *HP User Manual for Linux*, located at www.hp.com/support/linux_user_manual. For additional information about HP and Linux, visit www.hp.com/linux.

4.2 Verifying System After First Boot

HP continually strives to implement new enhancements that will increase functionality, performance, and reliability of your HP Workstation. To ensure that your workstation takes advantage of the latest enhancements, HP recommends that you install the latest BIOS, driver and software updates on a regular basis.

After successfully booting your system for the first time:

- Verify you have the latest system BIOS loaded. Refer to section 4.2.1 "Upgrading the BIOS" for instructions.
- Verify you have the latest drivers for your system. Refer to section 4.2.2 "Upgrading Device Drivers" for instructions.
- Review "Locating HP Resources" on page 5 to become familiar with your available HP resources.

Also, consider the following:

- Subscribe to Driver Alerts at www.hp.com/subscriptionchoice.
- Purchase a subscription to the Support Software CD kit. Refer to section 4.3 "Subscribing to Software Support" for ordering information.

4.2.1 Upgrading the BIOS

After the first boot, it is a good practice to verify your system is operating with the latest BIOS.

To check the current BIOS on the system:

During power up, wait for the prompt **F10=setup** to appear on the lower right corner of the screen. After the prompt appears, press the **F10** key to enter F10 setup. The F10 Setup Utility displays and lists the BIOS version under **File > System Information**. Note this number so that you can compare it with what is on the HP Web site.

To check the latest BIOS available:

1. Go to www.hp.com/go/workstationsupport.
2. From the "I would like to" area, click **download drivers and software**.
3. In the "select operating system" area, select your OS.
4. From the **Select a Category** area, click the **BIOS** link and note the version of the latest system BIOS.
5. Click the link below the "description" area.

If the BIOS on the Web site is the same as the version on the system, no further action is required.

If the BIOS on the Web site is a later version, then upgrade the system BIOS using the later version.

1. From the HP Web site, click the **obtain software** button next to the appropriate system BIOS.
2. From the **File Download** window, click **Save**.
3. Enter the location where you want the files to be saved and click **Next**.
4. Go to the location on your Linux file system where you have just saved the SoftPaq, which is in .tgz format.
5. From the command line, unzip the SoftPaq with the following command:
`gunzip filename.tgz`
A filename.tar file will result.
6. From the command line, untar the SoftPaq with the following command:
`tar -xvf filename.tar`
7. Change directory to:
`filename`
8. Review the README file in that directory and follow the instructions to upgrade the BIOS on your Linux workstation.

4.2.2 Upgrading Device Drivers

To install hardware devices, such as a printer, display adapter, or network adapter, after the operating system is installed, the operating system needs access to the appropriate software drivers for the devices. Device drivers are usually provided on a CD supplied with the peripheral device.

Some existing peripheral devices might not have been shipped with drivers developed for Linux. To locate the most current drivers:

1. Go to www.hp.com/go/workstationsupport.
2. Select your HP Workstation.
3. From the "I would like to" area, click the **download drivers and software** link.
4. From the "select your operating system" area, select the Linux OS that matches your box set.
5. Scroll down and download the desired driver.

If no driver is found, visit the Web site of the manufacturer of the peripheral device.

4.3 Subscribing to Software Support

You can also obtain the latest support software through a subscription to the Support Software CD Kit using the Support Software Management order form available at the following Web site:

<http://h18007.www1.hp.com/support/files/workstations/us/purchase.html>

4.4 Enabling Hyper-Threading Technology

Hyper-Threading Technology is a high performance technology, developed by Intel®, that allows a single processor to execute multiple threads of instructions simultaneously. HT Technology enables the Intel processor to utilize its execution resources more efficiently, delivering performance increases and improving user productivity. Not all system applications benefit from the HT Technology. Not all systems support HT Technology.

To see if HT Technology can benefit you, test your system by turning the feature on. The Computer Setup (F10) menu can be used to turn this feature on or off. To enter Computer Setup, during power up, wait for the prompt `F10=setup` to appear on the lower right corner of the screen. After the prompt appears, press the **F10** key to enter F10 setup. At Computer Setup, select **Advanced > Device Options > Hyper-Threading**, then choose whether to enable or disable the HT Technology.

 **NOTE:** If your workstation does not support HT Technology, the menu item will not be available on the **Computer Setup** menu.

 **NOTE:** To enable HT Technology, Linux systems require the latest system BIOS and an SMP kernel (for systems installed with a single processor). For additional information concerning the setup of Linux-preinstalled or Linux-enabled workstations, refer to the *HP User Manual for Linux*, which is located at www.hp.com/support/linux_user_manual.

 **NOTE:** HT Technology is only available on Intel-based systems.

For more information about the HT Technology, visit the Intel® Web site at www.intel.com.

4.5 Turning Off the Workstation

To properly turn off the workstation, first shut down the operating system software.

 **CAUTION:** Manually forcing the workstation off can cause loss of data.

To manually turn off power to the workstation, press and hold the power button for four seconds. However, manually turning off the power bypasses the standby state and can result in loss of data.

To reconfigure the power button to work in On/Off mode, run Computer Setup (F10). For more information about using Computer Setup, refer to the *Service and Technical Reference Guide*, which is available through a link on the *Documentation and Diagnostics CD* (www.hp.com/support/workstation_manuals).

5 Troubleshooting

5.1 Self Troubleshooting

This section provides some self-help tools and troubleshooting tables that you can use to troubleshoot your system.

5.1.1 HP Insight Diagnostics

HP Insight Diagnostics is an offline diagnostic utility that allows you to perform system testing. With this utility, you can test your system hardware and view the hardware configuration information for your system.

To use the HP Insight Diagnostics utility, insert the *Documentation and Diagnostics CD* into your system and reboot. Follow the onscreen menu options and directions to begin your testing.

 **NOTE:** If you do not have the *Documentation and Diagnostics CD* available, download it from www.hp.com/go/workstationsupport.

1. Select your HP Workstation from the list.
2. In the "I would like to" section, click the **download drivers and software**.
3. In the "select operating system" section, select your OS.
4. Click the **Diagnostics** link and then click the appropriate diagnostic program link.

For more information on using HP Insight Diagnostics, click the **Help** tab from within the program or refer to the *Service and Technical Reference Guide* at www.hp.com/support/workstation_manuals.

5.2 HP Troubleshooting Resources and Tools

5.2.1 HP Help and Support Center

The HP Help and Support Center is a customized HP user interface that enhances the Windows XP Help and Support Center Help feature. This customized utility allows you to access specific information about your HP Workstation such as configuration information by clicking **Start > Help and Support Center**. The interface also provides customized help and support links to the HP Web site related to your HP Workstation.

 **NOTE:** The customized HP Help and Support Center is not available on Windows XP Professional x64 Edition.

5.2.2 High Performance Tuning Framework

HP Performance Tuning Framework enables optimal configuration of HP Personal Workstations delivering stability and best performance.

HP Performance Tuning Framework will guide your system setup allowing a "custom" configuration that best matches the workstation to user requirements. This customization ensures availability of the latest graphics cards and drivers and removes some memory restraints.

The Framework's extensible design permits new configuration functionality and application support to be easily integrated over time. To facilitate the delivery of such new features, the Framework automatically updates itself when newer versions become available.

For more information about HP Performance Tuning Framework and instruction on how to use it, visit www.hp.com/workstations/software/framework/index.html.

5.2.3 E-Support

Online access and support resources include Web-based troubleshooting tools, technical knowledge databases, driver and patch downloads, online communities, and proactive notification services.

The following sites are also available to you.

- www.hp.com—Provides useful product information.
- www.hp.com/support/workstation_manuals—Provides the latest online documentation.
- www.hp.com/go/workstationsupport—Provides technical support information for your workstation.

- www.hp.com/support—Provides a listing of the worldwide technical support phone numbers. Access the numbers by visiting the Web site, selecting your region, and clicking **Contact HP** in the upper-left corner.

Troubleshoot a Problem

To help you troubleshoot issues with your system, HP provides the Business Support Center (BSC). BSC is a portal to an extensive selection of online tools. To access BSC, visit www.hp.com/go/workstationsupport. Select your product by clicking on the appropriate product link.

From the left-hand **Business Support Center** menu window, select the **troubleshoot a problem** link. From the **troubleshoot a problem** page, select the appropriate link from under the **useful documents** area.

Instant Support/Active Chat

HP Instant Support is a set of Web-based support tools that automate and speed the resolution of desktop computing, tape storage and printing problems.

Active Chat enables you to electronically submit a support ticket to HP over the Web. When you submit a support ticket, Active Chat will collect information about the computer and pass it to an online support specialist. The collection of information may take up to 30 seconds depending on the computer configuration. Once you have submitted a support ticket, you will receive a confirmation message containing your case ID, the support hours for your location and the estimated time of response.

For more information about HP Instant Support and Active Chat and how to use them, visit HP at www.hp.com/hps/hardware/hw_professional.html.

 **NOTE:** This feature is not available on Windows XP Professional x64 Edition.

Customer Advisories

Customer advisories provide clients important information about their system. To search for applicable customer advisories for your system, visit www.hp.com and use the search tool. To maximize your search efforts, use the "+" symbol to locate valid words. For example, to search for customer advisories for the xw8200, enter "+xw8200 +customer +advisory" and press **Enter**. You can also use the "-" (minus) symbol to exclude certain words. You can also register with Subscribers Choice to automatically receive customer advisories related to your system. Refer to "Locating HP Resources" on page 5 for information on how to register to Subscriber's Choice.

Product Change Notifications

Product Change Notifications (PCNs) provide customers with a notice of changes to their product. You can visit www.hp.com and perform a search for PCNs related to your system. You can also register with Subscribers Choice to automatically receive PCNs related to your system. Refer to "Locating HP Resources" on page 5 for information on how to register to Subscriber's Choice.

5.2.4 Helpful Hints

If you encounter some minor problem with your workstation, monitor, or software, refer to the following list of general suggestions before taking further action.

At Startup

- Check that the workstation and monitor are plugged into a working electrical outlet.
- Remove all diskettes from your system before turning it on.
- Check to see that the workstation is turned on and the green power light is on.
- If you have installed an operating system other than the factory-installed operating system, check to be sure that it is supported on your system by visiting www.hp.com/products/quickspecs.
- Check to see that the monitor is turned on and the green monitor light is on.
- Turn up the brightness and contrast controls of the monitor if the monitor is dim.
- If your workstation has multiple video sources installed and a single monitor, the monitor must be connected to the monitor connector on the source selected as the primary VGA adapter. During startup, the other monitor connectors are disabled; if the monitor is connected into one of these ports, it will not function. You can select the default VGA source in Computer Setup (F10).

During Operation

- Look for blinking LEDs on the front of the workstation. The blinking lights are error codes that will help you diagnose the problem. Refer to section 5.4.3 "Diagnostic Lights and Audible (Beep) Codes" for information on interpreting diagnostic lights and audible codes.

- Press and hold any key. If the system beeps, then your keyboard is operating correctly.
- Check all cable connections for loose connections or incorrect connections.
- Wake the workstation by pressing any key on the keyboard or the power button. If the system remains in suspend mode, shut down the system by pressing and holding the power button for at least four seconds, then press the power button again to restart the system. If the system will not shut down, unplug the power cord, wait a few seconds, then plug it in again. If it does not restart automatically, press the power button to start the workstation.
- Reconfigure your workstation after installing a non-plug and play expansion board or other option. See section 5.4.2 "Hardware Installation Problems" for instructions.
- Be sure that all the needed device drivers have been installed. For example, if you have connected a printer, you need to install a printer driver.
- If you are working on a network, plug another workstation with a different cable into the network connection. There may be a problem with the network plug or cable.
- If you recently added new hardware, remove the hardware and see if the workstation functions properly.
- If you recently installed new software, uninstall the software and see if the workstation functions properly.
- If the screen is blank, plug the monitor into a different video port on the workstation if one is available. Or, change out the monitor with a monitor that you know is working properly.
- Upgrade the BIOS. A new release of the BIOS could have been released that supports new features or fixes your problem.
- For more detailed information, refer to the troubleshooting chapter in the *Service and Technical Reference Guide* at www.hp.com/support/workstation_manuals.

5.3 Power-On Self Test (POST) Error Messages

POST is a series of diagnostic tests that runs automatically when the system is turned on. An audible, visual, or both message occurs before the operating system boots if the POST encounters a problem. POST checks the following items to ensure that the workstation system is functioning properly:

- Keyboard
- Memory modules
- Diskette drives
- All SATA and SCSI mass storage devices
- Processors
- Controllers

You can also find additional information about POST error messages in the *Service and Technical Reference Guide*, which is available at www.hp.com/support/workstation_manuals.

5.4 Basic Troubleshooting

This section concentrates on problems that you might encounter during the initial setup process. Additional troubleshooting information is available in the *Service and Technical Reference Guide* at www.hp.com/support/workstation_manuals.

5.4.1 General Problems

You may be able to easily resolve the general problems described in this section. If a problem persists and you are unable to resolve it yourself or if you feel uncomfortable about performing the operation, you can contact an HP customer care center, or you can contact an authorized dealer or reseller. For a list of support telephone numbers for your region, visit www.hp.com/support, select your region and click **Contact HP** in the upper-left corner.

Table 5-1 General Installation Problems

Problem	Cause	Solution
Workstation appears locked up and will not turn off when the power button is pressed.	Software control of the power switch is not functional.	Press and hold the power button for at least four seconds until the workstation turns off.
Workstation will not respond to USB keyboard or mouse.	Workstation is in Stand by mode.	Press the power button to resume from standby mode.

CAUTION: When attempting to resume from standby mode, do not hold down the power button for more than four seconds. Otherwise, the workstation will shut down and you will lose your data.

Table 5-1 General Installation Problems

Problem	Cause	Solution
Workstation date and time display is incorrect.	RTC (real-time clock) battery may need to be replaced. NOTE: Connecting the workstation to a live AC outlet prolongs the life of the RTC battery.	First, reset the date and time using Computer Setup (F10). If the problem persists, replace the RTC battery. See the <i>Service and Technical Reference Guide</i> for instructions on installing a new battery, or contact an authorized dealer or reseller for RTC battery replacement.
Workstation appears to pause periodically.	Network driver is loaded and no network connection is established.	Establish a network connection, or use Computer Setup (F10) to disable the network controller.
Cursor will not move using the arrow keys on the keypad.	The Num Lock key might be on.	Press the Num Lock key. The Num Lock light should not be on if you want to use the arrow keys. The Num Lock key can be disabled (or enabled) in Computer Setup (F10).
Cannot remove workstation cover or access panel.	Solenoid hood lock, featured on some systems, is locked.	Unlock the solenoid hood lock using Computer Setup (F10). The solenoid hood lock FailSafe Key, a device for manually disabling the solenoid hood lock, is available from HP. You will need the FailSafe Key in case of forgotten password, power loss, or workstation malfunction. (Not applicable to the xw8200 and xw9300)
	The panel is locked (xw6200, xw8200, and xw9300).	Use the key located on the back of the unit to unlock the panel.
Poor performance is experienced.	Processor is hot.	<ol style="list-style-type: none">1. Make sure the airflow to and from the workstation is not blocked.2. Make sure the fans are connected and working properly.3. Make sure the processor heatsink is installed properly.
	Hard drive is full.	Transfer data from the hard drive to create more space on the hard drive.
	The customer has memory installed in a single channel instead of in both channels.	Ensure DIMMs are matched and installed in both memory channels.

Table 5-1 General Installation Problems

Problem	Cause	Solution
System does not power on and the LEDs on the front of the workstation are not blinking.	System unable to power on.	<p>Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then:</p> <ol style="list-style-type: none">1. Remove the expansion cards one at a time and try holding the power button again for less than 4 seconds.2. Replace the system board. <p>OR</p> <p>Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then:</p> <ol style="list-style-type: none">1. Check that unit is plugged into a working AC outlet.2. Open the access panel and check that the power button harness is properly connected to the system board.3. Check that both power supply cables are properly connected to the system board.4. Check the power supply functionality.<ol style="list-style-type: none">a. Disconnect the AC power.b. Remove all internal power supply cables from the system board.c. Plug in the AC power.<ul style="list-style-type: none">• If the power supply fan spins and the BIST LED lights, the power supply is functional, so replace the system board.• If the power supply fan does not spin or the BIST LED does not light, replace the power supply.

5.4.2 Hardware Installation Problems

You might need to reconfigure the workstation when you add or remove hardware, such as an additional optical drive. If you install a plug and play device, some operating systems automatically recognize the device and configure the workstation. If you install a non-plug and play device, you must reconfigure the workstation after installing the new hardware.

Table 5-2 Hardware Installation Problems

Problem	Probable Cause	Recommended Solution
A new device is not recognized as part of the system.	Device is not seated or connected properly.	Ensure that the device is properly and securely connected and that pins in the connector are not bent down.
	Cables of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected and that pins in the cable or connector are not bent down.
	Power switch of new external device is not turned on.	Turn off the workstation, turn on the external device, then turn on the workstation to integrate the device with the workstation system.
	When the system advised you of changes to the configuration, you did not accept them.	Reboot the workstation and follow the instructions for accepting the changes.
	A plug and play board may not automatically configure when added if the default configuration conflicts with other devices.	Use Computer Setup (F10) to reconfigure or disable devices to resolve the resource conflict.

Table 5-2 Hardware Installation Problems

Problem	Probable Cause	Recommended Solution
Workstation will not start.	Wrong memory modules were used in the upgrade or memory modules were installed in the wrong location.	<ol style="list-style-type: none"> 1. Review the documentation that came with the system to determine if you are using the correct memory modules and to verify the proper installation. 2. Observe the beeps and LED lights on the front of the workstation. See "Interpreting Diagnostic Lights and Audible Codes" to determine possible causes. 3. If you still cannot resolve the issue, contact Customer Support.

5.4.3 Diagnostic Lights and Audible (Beep) Codes

This section covers the front panel light (LED) error and operation codes as well as the audible codes that may occur before or during the Power-On Self-Test (POST).

Table 5-3 Diagnostic Lights and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Green Power LED On.	None	Workstation on.	None
Green Power LED blinks every two seconds.**	None	Workstation in Suspend to RAM mode (select models only) or normal Suspend mode.	None
Green Power LED is off.**	None	Workstation in Suspend to Disk or "Hibernate" mode.	None
Green Power LED blinks three times, once per second.**	None	Workstation in Suspend to RAM mode (select models only) or normal Suspend mode.	None
Green Power LED blinks four times, once per second.**	None	Workstation in Suspend to Disk or "Hibernate" mode.	None
<p>NOTE: For the following LED activity and beeps, the beeps will be heard through the chassis speaker. Blinks and beeps will be repeated for 5 cycles, after that, only the blinks will continue to repeat.</p>			
Red Power LED blinks two times, once every second, followed by a two-second pause.	2 (only on xv4200, xv4300 and xv9300)	Processor thermal protection activated: A fan may be blocked or not turning. OR The heatsink/fan assembly is not properly attached to the processor.	<ol style="list-style-type: none"> 1. Ensure that the workstation air vents are not blocked and the cooling fan is running. 2. Open the access panel, press power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. Ensure the fan is fully/properly seated or installed. 3. If fan is plugged in and seated properly, but is not spinning, then replace processor fan. 4. Reseat processor heatsink and verify that fan assembly is properly attached. 5. Contact an authorized reseller or service provider.
Red Power LED blinks three times, once every second, followed by a two-second pause.	3 (only on xv4200, xv4300, and xv9300)	Processor not installed (not an indicator of bad processor).	<ol style="list-style-type: none"> 1. Check to see that the processor is present. 2. Reseat the processor.

Table 5-3 Diagnostic Lights and Audible Codes (continued)

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED blinks four times once every second, followed by a two-second pause.(only on xw4200, xw4300, and xw9300)	4	Power failure (power supply is overloaded)	<ol style="list-style-type: none">1. Open the access panel and ensure the 4-wire (xw4200 and xw4300) or the 8-pin/wire (xw6200, xw8200, and xw9300) power supply cable is seated into the connector on the system board.2. Check if a device is causing the problem by removing ALL attached devices (such as hard, diskette, or optical drives, and expansion cards.) Power on the system. If the system enters the POST, then power off and replace one device at a time and repeat this procedure, until failure occurs. Replace the device that is causing the failure. Continue adding devices one at a time to ensure all devices are functioning properly.3. Check the power supply functionality.<ol style="list-style-type: none">a. Disconnect the AC power.b. Remove all internal power supply cables from the system board.c. Plug in the AC power.<ul style="list-style-type: none">• If the power supply fan spins and the BIST LED lights, the power supply is functional, so replace the system board.• If the power supply fan does not spin or the BIST LED does not light, replace the power supply.
Red Power LED blinks five times, once every second, followed by a two-second pause.	5	Pre-video memory error	<ol style="list-style-type: none">1. Reseat DIMMs.2. Replace DIMMs one at a time to isolate faulty module.3. Replace third-party memory with HP memory.4. Replace the system board.
Red Power LED blinks six times, once every second, followed by a two-second pause.	6	Pre-video graphics error.	<ol style="list-style-type: none">1. Reseat the graphics card.2. Replace the graphics card.3. Replace the system board.
Red Power LED blinks seven times, once every second, followed by a two-second pause.	7	System board failure (ROM detected failure prior to video).	Replace the system board.
Red Power LED blinks eight times, once every second, followed by a two-second pause.	8	Invalid ROM based on bad checksum.	<ol style="list-style-type: none">1. Upgrade the ROM using a ROMPaq diskette. See the "ROM Flash" section of the <i>Service and Technical Reference Guide</i> at www.hp.com/support/workstation_manuals. A ROMPaq is a software support bundle of files that allows you to upgrade your ROM.2. Replace the system board.
Red Power LED blinks nine times, once every second, followed by a two-second pause.	9	System powers on but does not boot.	<ol style="list-style-type: none">1. Replace the system board.2. Replace the processor.

Table 5-3 Diagnostic Lights and Audible Codes (continued)

Activity	Beeps	Possible Cause	Recommended Action
System does not power on and LEDs are not blinking.	None	System unable to power on.	<p>Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then:</p> <ol style="list-style-type: none">1. Remove the expansion cards one at a time and try holding the power button again for less than 4 seconds.2. Replace the system board. <p>OR</p> <p>Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then:</p> <ol style="list-style-type: none">1. Check that unit is plugged into a working AC outlet.2. Open the access panel and check that the power button harness is properly connected to the system board.3. Check that both power supply cables are properly connected to the system board.4. Check the power supply functionality.<ol style="list-style-type: none">a. Disconnect the AC power.b. Remove all internal power supply cables from the system board.c. Plug in the AC power.<ul style="list-style-type: none">• If the power supply fan spins and the BIST LED lights, the power supply is functional, so replace the system board.• If the power supply fan does not spin or the BIST LED does not light, replace the power supply.

5.5 Calling Technical Support

At times you may encounter an issue that requires technical support. If after using the self-troubleshooting tools you still cannot resolve your issue, note the following to help you locate the necessary information that will assist technical support in resolving the situation.

- Be in front of your workstation when you call.
- Write down the workstation serial numbers, product numbers, model names, and model numbers before calling and have them readily available.
- Note any applicable error messages.
- Note any add-on options.
- Note the operating system.
- Note any third-party hardware or software.
- Note any blinking LEDs on the front of the workstation.
- Note the applications you were using when you noted the issue.
- Be prepared to spend the time necessary troubleshooting the problem with the service technician.

 **NOTE:** When calling in for service or support, you may be asked for the Product Number (example: PS988AV) of your workstation. If your workstation has a Product Number, it is generally located next to the 10- or 12-digit Serial Number of your workstation.

 **NOTE:** Refer to section 2.6 "Serial Number and COA Label Location" for the location of the Serial Number label on your workstation. In general, the Serial Number and Product Number label are located at the rear of the workstation.

For a listing of all worldwide technical support phone numbers, visit www.hp.com/support, select your region and click **Contact HP** in the upper-left corner.

A Features and Accessories

A.1 Security Features

The following security features are available for your workstation.

- Solenoid hood lock—this is an optional software-controllable cover lock, controlled by the setup password, that prevents unauthorized access to the internal components.

 **NOTE:** This feature is not available on the xw8200 or xw9300.

- Cable lock provision—your workstation is equipped with a cable lock slot for an optional cable lock. This allows you to secure the unit to a fixed or heavy object such as a desk.
- Padlock loop—your workstation has a standard padlock loop available so that you can secure the access panel to the system chassis with a padlock. It can also be used to secure the unit to a fixed or heavy object.
- Access panel lock—on some workstations, the access panel comes with a keylock to prevent internal access to your system. The keys for the keylock are located on the back of your workstation.
- Universal chassis clamp lock—all workstations support this optional custom designed all-in-one locking solution that protects the internal components while securing the monitor, keyboard, mouse or speaker cables. It can also be used to secure the unit to a fixed or heavy object.
- Rear port control cover—the xw4200 and xw4300 support this option that guards against the removal of any of the I/O cables connected to the main I/O back panel of your system.

For more information about these features, see the back panel illustrations earlier in this guide or refer to the *Service and Technical Reference Guide* Web link on the *Documentation and Diagnostics* CD or go to www.hp.com/support/workstation_manuals.

A.2 Chassis Conversion Features

The HP xw4200 Workstation and HP xw4300 Workstation are convertible minitower (CMT) systems. They can be physically reconfigured from a minitower orientation into a desktop orientation (or from a desktop to a minitower). For information and procedures on converting your system, refer to the *Service and Technical Reference Guide* Web link on the *Documentation and Diagnostics* CD or go to www.hp.com/support/workstation_manuals.

A.3 Accessories

The HP xw series Workstations can be enhanced with several HP accessories. Some of these options include:

- graphics cards
- memory
- diskette drives
- optical drives
- hard drives
- processors
- audio cards

Visit www.hp.com/workstations/pws/ and click **Options & Accessories**. This site displays items provided by HP along with items tested by HP but provided by third-party suppliers. Refer to the *Service and Technical Reference Guide* Web link on the *Documentation and Diagnostics* CD or go to www.hp.com/support/workstation_manuals for instructions on installing and removing components.

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